an image acquisition apparatus according to an exemplary embodiment includes the color filter **230** of the RGB pattern as shown in FIG. **14**.

[0112] Total resolution of an image having a color arrangement corresponding to the RGB pattern may be obtained even when the image is shifted to the left and the right or upwards and downwards, and thus, as shown in FIG. **17**, the image may be shifted to the left and the right from the center.

[0113] Referring to FIG. **17**, a case where an image of a mode **2** (t**2**) is input to the image acquisition apparatus is illustrated. A mode **1** (t**1**) of FIG. **17** indicates an image obtained when the optical path modulation optical element **10** shifts the image of the mode **2** to the right. A mode **2** (t**2**) of FIG. **17** indicates the image incident to the image sensor **150** without being shifted by the optical path modulation optical element **10**. A mode **3** (t**3**) of FIG. **17** indicates an image obtained when the optical path modulation optical element **10** shifts the image of the mode **2** to the left. An image may be shifted from the mode **2** to the mode **1** and from the mode **2** to the mode **3**. Alternatively, an image may be shifted from the mode **1** to the mode **2** and from the mode **3** to the mode **2**.

[0114] Herein, the mode **1** may correspond to an image incident to the image sensor **150** without being shifted by the optical path modulation optical element **10**, the mode **2** may correspond to an image obtained by shifting the image of the mode **1** to the left, and the mode **3** may correspond to an image obtained by shifting the image of the mode **2** to the left. The image of the mode **2** is obtained by shifting the image of the mode **3** to the right, and the image of the mode **1** is obtained by shifting the image of the mode **2** to the right.

[0115] When the color filter **230** of the RGB pattern is applied to an image acquisition apparatus according to one or more exemplary embodiments, the image acquisition operation may start from any one of the modes **1**, **2**, and **3**, and accordingly, a direction and a sequence of a shift operation for obtaining the images of the modes **1**, **2**, and **3** may vary.

[0116] When R images, G images, and B images of the modes **1**, **2**, and **3** of FIG. **17**, which are acquired in a time division manner, are respectively combined, a color image entirely including R images, a color image entirely including G images, and a color image entirely including B images may be obtained as shown in the lower part of FIG. **17**.

[0117] Even when a color filter including Y, M, and C filter elements is applied to an image acquisition apparatus according to one or more exemplary embodiments instead of the R, G, and B filter elements of the color filters **130** and **230**, the image acquisition operations of FIGS. **16** and **17** may be applied.

[0118] According to an image acquisition apparatus and an image acquisition method according to one or more exemplary embodiments, a color image is acquired by shifting an optical path of an image by using an electrically controlled optical path modulation optical element, acquiring image information for each color from a plurality of positions in a time division manner with respect to the same image, and combining the acquired image information for each color, and thus, a high-resolution color image may be acquired.

[0119] According to the image acquisition apparatus and the image acquisition method according to one or more exemplary embodiments, image information for each color may be acquired from a plurality of positions in a time division manner by an electrical control of an optical path modulation optical element without mechanically moving an optical element such as a color filter, and thus, accurate image information for each color may be acquired at a high speed without causing problems such as image vibrations caused by mechanical movement of the optical element.

[0120] It should be understood that exemplary embodiments described herein should be considered in a descriptive sense only and not for purposes of limitation. Descriptions of features or aspects within each exemplary embodiment should typically be considered as available for other similar features or aspects in other exemplary embodiments.

[0121] While one or more exemplary embodiments have been described with reference to the figures, it will be understood by those of ordinary skill in the art that various changes in form and details may be made therein without departing from the spirit and scope as defined by the following claims.

What is claimed is:

1. An image acquisition apparatus comprising:

a color filter on which a plurality of types of color filter elements are arranged;

an optical path modulation optical element configured to shift an incident position of an image on the color filter by electrically modulating an optical path of the image;

a photoelectric conversion cell array configured to acquire image information for each color by detecting, in pixel units, light which has passed through the color filter; and

a signal processor configured to acquire, in a time division manner, the image information for each color of the image of which a position is changed by the optical path modulation optical element by using a detection signal of the photoelectric conversion cell array, and configured to obtain a color image by combining the acquired image information for each color.

2. The image acquisition apparatus of claim **1**, wherein the optical path modulation optical element is configured to shift the incident position of the image on the color filter in one pixel unit, and

the signal processor is configured to acquire, in the time division manner, the image information for each color of the image of which a position is changed in one pixel unit by the optical path modulation optical element.

3. The image acquisition apparatus of claim **2**, further comprising a driver configured to electrically drive the optical path modulation optical element such that the position of the image is changed on the color filter in the time division manner.

4. The image acquisition apparatus of claim **1**, wherein the optical path modulation optical element is an electrowetting prism of which an inclination angle of an interface between a first fluid and a second fluid is controlled by an applied voltage, the first fluid and the second fluid having different refractive indices.

5. The image acquisition apparatus of claim **4**, wherein an incident surface and an exit surface of the electrowetting prism are parallel to each other.

6. The image acquisition apparatus of claim **4**, wherein the electrowetting prism comprises first and second electrowetting prisms, each provided with the first and second fluids, and

the first and second electrowetting prisms are arranged along a traveling direction of the light such that one of